Environmental Assessment

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Chapter 1. Introduction

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1.1. Identifying Information:

This Environmental Assessment (EA) has been prepared to analyze the potential impacts of Wapiti Operating LLC.'s oil well drilling project in Duchesne County, Utah. The EA is a site-specific analysis of potential impacts that could result from the implementation of the Proposed Action or alternatives to the Proposed Action. The EA assists the Bureau of Land Management (BLM) in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any "significant" impacts could result from the analyzed actions. ("Significance" is defined by NEPA and is found in regulation 40 CFR 1508.27.) An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI) statement. A FONSI statement is a document that briefly presents the reasons why implementation of the selected alternative would not result in "significant" environmental impacts (effects) beyond those already addressed in Vernal Field Office Resource Management Plan (BLM 2008). If the decision maker determines that this project has "significant" impacts following the analysis in the EA, then an EIS would be prepared for the project. If not, a Decision Record (DR) may be signed for the EA approving the alternative selected.

Wapiti proposes to drill one oil well from a well pad in Section 5, T. 11 S., R. 17 E., Duchesne County, Utah, The proposed project area is located approximately 26 miles south of Myton, Utah. The proposed well would be drilled utilizing a new location. Approximately 1,080 feet of road would be built. In addition Wapiti would build approximately 1,132 feet of 4 inch surface pipeline. Table 2.1, "Surface Disturbance Summary" (p. 5) lists the well and their associated disturbance.

1.1.1. Title, EA number, and type of project:

Title: Wapiti's Federal 41–5–11–17H

NEPA #: DOI-BLM-UT-G010-2014–0197–EA

Project Type: Environmental Assessment

1.1.2. Location of Proposed Action:

The proposed project area is located in section 5, T. 11 S., R. 17 E., Duchesne County, Utah. The proposed project area is located approximately 26 miles south of Myton, Utah.

1.1.3. Name and Location of Preparing Office:

Vernal Field Office

170 South 500 East

Vernal, Ut. 84078

(435) 781–4400

1.1.4. Identify the subject function code, lease, serial, or case file number:

Lease Number: UTU-75672

1.1.5. Applicant Name:

Wapiti Operating LLC.

1.2. Purpose and Need for Action:

Private exploration and production from federal oil and gas leases is an integral part of the BLM oil and gas leasing program under authority of the Mineral Leasing Act of 1920, as amended by the Federal Land Policy and Management Act of 1976 and the Federal Onshore Oil and Gas Leasing Reform Act of 1987. The operator has a valid existing right to extract mineral resources from Federal Lease UTU-75672 subject to the lease's terms and conditions. The BLM oil and gas leasing program encourages development of domestic oil and gas reserves and the reduction of U.S. dependence on foreign energy sources. The BLM's purpose is to allow beneficial use of the applicant's lease in an environmentally sound manner.

The underlying need for the proposed action is for Wapiti to develop Federal Lease UTU-75672 by drilling the proposed well, and if successful, to produce commercial quantities of gas or oil from the federal oil and gas lease. There are known hydrocarbon-trapping mechanisms within Wapiti's development program, based on previously drilled wells and reasoned geologic formation and mineral potential. The Federal 41–5–11–17H has been designated as the Desert Federal Exploratory Unit obligation well.

1.3. Scoping, Public Involvement and Issues:

The proposed project was posted on the Eplanning NEPA Register on 7/14/2014.

Chapter 2. Proposed Action and Alternatives

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2.1. Description of the Proposed Action:

Wapiti proposes to drill one oil well from a well pad in Section 5, T. 11 S., R. 17 E., Duchesne County, Utah. The project area is located approximately 26 miles south of Myton, Utah. The proposed well would be drilled utilizing a new location. Approximately 1,080 feet of road would be built. Approximately 5,717 feet of road would be built. In addition Wapiti would build approximately 1,132 feet of 4 inch surface pipeline, Table 2.1, "Surface Disturbance Summary" (p. 5) lists the well and their associated disturbance.

Table 2.1. Surface Disturbance Summary

Well Name	New Well Pad Disturbance (acres)	Access Road (feet)	Access Road (acres)	Surface Pipelines (feet)	Surface Pipe Lines (acres)*	Total Acres of New Surface Disturbance (acres)
Federal 41–5–11–17H	3.2	1,080	1.0	1,132	* Pipe line will be laid in the barrow ditch of the road	4.2
TOTAL	**3.2**	**1,080**	**1.0**	**1,132**	**0.0**	**4.2**

2.1.1. Access

Approximately 1,080 feet of new access road would be built. The access road would have a 40 foot disturbance width with an 14–16 foot wide running surfacetotal disturbed width to be no more than 40'. Plans for improvement and/or maintenance of existing roads are to maintain in as good or better conditions than at present. A regular maintenance plan will include, but not be limited to blading, ditching, and surfacing. The new surface disturbance would be approximately 1.0 acre.

Borrow ditches to be back-sloped 3:1 or shallower. Weather permitting, the access road would be mowed and the borrow ditch material will be pulled over the top of the mowed area.

Maximum grades will not exceed BLM standards.

Two (2) 24" x 30' culverts will be installed. Culverts will be installed prior to commencement of drilling operations. Riprap would be placed at the inlet and outlet of any installed culverts. Drainage may consist of wing ditches between the existing road and the wellsite if necessary, and would be installed prior to commencing drilling operations. The borrow ditches along the proposed access road would be re-seeded if the well is completed as a producer. The reseeding of the borrow ditches would reduce the area utilized by this location.

Surfacing material, if necessary, would consist of native material from borrow ditches. The topsoil would be cleared by fanning back during the construction and crowning of the road. Upon commencement of road construction, the topsoil would be replaced in the borrow ditches.

Fence cuts, gates and cattle guards would not be required.

Road construction on public lands shall meet the minimum standards listed in BLM Manual Section 9113 and shall be constructed under the direction of a qualified construction supervisor(s). The qualified construction supervisor shall be an engineer, company superintendent or other representative who is competent and knowledgeable in oilfield road and drillsite construction, and

able to speak for the operator. The dirt contractor, or drilling/completion foremen, whose primary expertise is not in construction, do not qualify as construction supervisors.

There is a crossing of a gas surface pipeline along the Sand Wash Road. Prior to construction the pipeline company would be contacted prior to construction. A 3’ compacted earth lift would be constructed over the pipeline.

2.1.2. Well Site Layout

BLM would be contacted prior to construction of production facilities. A Sundry Notice (SN) would be filed if requested by BLM.

Dimension of Proposed Facility of the pad is 300’ x 350’ = 105,000 ft2, for drilling operations. Total disturbance would be ±3.2 acres. Six inches (6”) of topsoil would be removed prior to location construction from the cutting pit area and/or any other disturbed areas. Topsoil would be stockpiled adjacent to the wellsite within the maximum disturbed area. Topsoil and spoils pile would be clearly separated.

Construction materials would consist of native materials from borrow ditches and location areas. Surfacing materials would be obtained from available permitted sources, if needed, and consist of pit gravel.

Traveled portion of production site would be gravel surfaced upon completion of production facility installation and prior to production. Site preparation for production would be done with standard excavation equipment using native materials. Additional surface material would be obtained from commercial sources or an approved borrow area. Construction and maintenance would not be performed when the ground or topsoil is frozen or too wet to adequately support construction equipment. If such equipment creates ruts in excess of four (4) inches deep, the soil would be deemed too wet.

Roads and well production equipment, such as tanks, treaters, separators, vents, electrical boxes, and equipment associated with pipeline operation, would be placed on location so as to permit maximum interim reclamation of disturbed areas. If equipment is found to interfere with the proper interim reclamation of disturbed areas, the equipment may be moved so proper recontouring and revegetation can occur.

Production equipment would be painted light reflective colors to limit evaporation and waste of liquid hydrocarbons. All above ground permanent structures would be painted to blend with the surrounding landscape. The color specified is given with the Pantone® reference color, Covert (18-0617 TPX). Production facilities may vary according to actual reservoir discovered and would be engineered upon completion of well tests. Production facilities would be clustered and placed away from cut/fill slopes to allow the maximum recontouring of cut/fill slopes. To reduce the view of production facilities from visibility corridors and private residences, facilities would not be placed in visually exposed locations (such as ridgelines and hilltops). The tallest structure would be no greater than 20’ in height. If the well is a producer all production facilities would be authorized by a SN. No facilities would be constructed off location.

Reserve pit would be lined with a synthetic liner 12 mil or thicker. The reserve pit liner shall be made of any manmade synthetic material of sufficient size and qualities to sustain a hydraulic conductivity no greater than 1 x 10-7 cm/sec after installation and which is sufficiently reinforced to withstand normal wear and tear associated with the installation and pit use thereof. The liner

shall be chemically compatible with all substances that may be put into the pit. Reserve pit would be fenced on three sides during drilling operations and on fourth side at time of rig release. Pit would remain fenced until backfilled.

Erosion control measures would be applied pursuant to Wapiti's General Permit to Discharge Stormwater under the Utah Pollutant Discharge Elimination System and accompanying Stormwater Pollution Prevention Plan.

2.1.3. Pipelines

Approximately 1,132 feet of new pipeline would be built. The pipeline would be laid in the barrow ditch of the road so there would no disturbance caused by the pipeline.

The gas transportation pipeline would be laid on the surface along the access road in the borrow ditch with minimal disturbance. Construction equipment for the pipeline would utilize the access road as much as possible. The pipeline would consist of a 50' total width with a 25' disturbed width and would be within the 100' width as surveyed by the archeologist. No intermediate staging area would be used. Pipeline construction shall not block nor change the natural course of any drainage. The pipeline would be hydrostatically tested with produced gas.

The construction specifications of the pipe are as follows. Gas transportation pipeline: Diameter: 4" Nominal Pipe Size, Average OD: 4-1/2", Grade: PolyPipe® GDY20 DR11, Design Pressure: 1,250 psi @ 73.4°F, 1,000 psi @ 140°F, Actual Pressure: 50 - 150 psi, Field Test Pressure: 300 psi, Pressure Test Fluid: Natural gas from well, Pipeline Depth: Surface Line, Or: Diameter: 4" Nominal Pipe Size, Wall Thickness: 0.188", Grade: Gr "B", X-42 ERW line pipe, Mill Test Pressure: 3,000 psi, Design Pressure: 2,710 psi, Actual Pressure: 50 - 150 psi, Pressure Test Fluid: Natural gas from well, Pipeline Depth: Surface Line.

Pipeline construction is anticipated to be approximately two (2) to four (4) weeks. Anticipated equipment is as follows: 3 – Trucks, 3 – Dozer or equipment to move pipe. Anticipated full time personnel are as follows: 1 – Supervisor, 1 – Pipeline supervisor, 3 – Crews (welders with helpers). Part-time technical support persons would be onsite from time to time as necessary.

Pipeline would be constructed as shown on the attached exhibit. The poly pipeline sections would be fused in the field and installed in the access road borrow ditch. All construction would be with as little surface disturbance as possible.

The allocation and sales meters would be located in the immediate vicinity of the wellhead for the well location unless otherwise modified by a Sundry Notice.

2.1.4. Invasive Plants and Noxious Weeds

Annual or noxious weeds shall be controlled on all disturbed areas as directed by the Field Office Manager. An intensive weed monitoring and control program would be implemented beginning the first growing season after interim and final reclamation. Noxious weeds that have been identified during monitoring would be promptly treated and controlled. A Pesticide Use Proposal (PUP) would be submitted to the BLM for approval prior to the use of herbicides. All reclamation equipment would be cleaned prior to use to reduce the potential for introduction of noxious weeds or other undesirable non-native species. The operator would coordinate all weed and insect control measures with state and/or local management agencies.

2.1.5. Water Supply and Disposal

Approximately 1.5 acre-feet of fresh water would be needed for drilling and construction operations. Water would be transported by truck from the Myton City Water in Myton, Utah under existing permits or other available commercial sources under existing permits. If a closer water source is identified and deemed usable, Wapiti would notify the Authorized Officer (AO) with the necessary information.

Anticipated water use is as follows: Mud drilling water requirements are anticipated to be approximately 10,814 bbls (454,188 gallon [US, liquid] = 1.3938419 acre foot [US survey]). Road watering would be done only if dry conditions dictate, and would utilize approximately 900 bbls (37,800 gallons or 0.11 acre feet).

2.1.6. Waste Disposal

Drill cuttings would be buried in reserve pit when dry. Drilling fluid would be evaporated and then buried in the reserve pit when dry. Completion fluids would be flowed to the reserve pit and allowed to evaporate. Reserve pit layout is illustrated on attached exhibits.

Sewage disposal facilities would be in accordance with State and Local Regulations. Sewage may not be buried on location or put in a borehole. Utah Department of Environmental Quality (UT DEQ) Regulations prevent this unless a UT DEQ Permit is obtained.

Garbage and other waste - burnable waste would be contained in a portable trash cage which would be totally enclosed with small mesh wire. Cage and contents would be transported to and trash dumped at a UT DEQ approved Sanitary Landfill upon completion of operations. Trash would be picked up if scattered and contained in trash cage as soon as practical after rig is moved off.

Wapiti maintains a file, per 29 CFR 1910.1200(g) containing current Material Safety Data Sheets (MSDS) for all chemicals, compounds, and/or substances which are used during the course of construction, drilling, completion, and production operations for this project. Hazardous materials (substances) which may be transported across these lands may include drilling mud and cementing products which are primarily inhalation hazards, fuels (flammable and/or combustible), materials that may be necessary for well completion/stimulation activities such as flammable or combustible substances and acids/gels (corrosives). The opportunity for Superfund Amendments and Reauthorization Act (SARA) listed Extremely Hazardous Substances (EHS) at the site is generally limited to proprietary treating chemicals. All hazardous substances, EHS, and commercial preparations would be handled in an appropriate manner to minimize the potential for leaks or spills to the environment.

2.1.7. Reclamation

A General Reclamation Plan is being submitted as an attachment.

A reference area for the reclamation plan would be located and used as a reference for the final reclamation.

Upon release of the drilling rig, rathole and mousehole would be filled. Debris and equipment not required for production would be removed. Roads and well production equipment, such as tanks, treaters, separators, vents, electrical boxes, and equipment associated with pipeline operation,

would be placed on location so as to permit maximum interim reclamation of disturbed areas. If equipment is found to interfere with the proper interim reclamation of disturbed areas, the equipment may be moved so proper recontouring and revegetation can occur.

Six inches (6”) of topsoil would be removed prior to location construction from the cutting pit area and/or any other disturbed areas. Topsoil would be stockpiled adjacent to the wellsite within the maximum disturbed area. Topsoil and spoils pile would be clearly separated. Salvaging and spreading topsoil would not be performed when the ground or topsoil is frozen or too wet to adequately support construction equipment. If such equipment creates ruts in excess of four (4) inches deep, the soil would be deemed too wet.

Earthwork for interim and final reclamation must be completed within six (6) months of well completion or plugging (weather permitting).

In areas that would not be drill-seeded, the seed mix would be broadcast-seeded at twice the application rate shown and covered 0.25 to 0.5 inches deep with a harrow or drag bar or would be broadcast-seeded into imprints, such as fresh dozer cleat marks. No seeding would occur from winter freezing of the soil until August 14. Fall seeding is preferred and would be conducted from August 15 and prior to ground freezing.

Annual or noxious weeds shall be controlled on all disturbed areas as directed by the Field Office Manager. An intensive weed monitoring and control program would be implemented beginning the first growing season after interim and final reclamation. Noxious weeds that have been identified during monitoring would be promptly treated and controlled. A Pesticide Use Proposal (PUP) would be submitted to the BLM for approval prior to the use of herbicides. All reclamation equipment would be cleaned prior to use to reduce the potential for introduction of noxious weeds or other undesirable non-native species. The operator would coordinate all weed and insect control measures with state and/or local management agencies. A Weed Plan is being submitted as an attachment.

2.1.7.1. Interim Reclamation (Production)

Rehabilitation of unneeded, previously disturbed areas would consist of backfilling and contouring the cuttings pit area, back sloping and contouring all cut/fill slopes. These areas would be re-seeded.

Wellpad size would be reduced to minimum size necessary to conduct safe operations. Cuts/fills would be reduced to 3:1 or shallower.

Reserve pits would be closed and backfilled as soon as the pit contents are dry enough to do so, or no later than the end of the next full summer following rig release, whichever comes first, to allow sufficient time for the pit contents to dry. Reserve pits remaining open after this period would require written authorization of the AO. Immediately upon well completion, any hydrocarbons or trash in the reserve and flare pits would be removed. Pits would be allowed to dry, be pumped dry, or solidified in-situ prior to backfilling.

Following completion activities, pit liners would be removed or removed to the solids level and disposed of at an approved landfill, or treated to prevent their reemergence to the surface and interference with long-term successful revegetation. If it was necessary to line the pit with a synthetic liner, the pit would not be trenched (cut) or filled (squeezed) while containing fluids. When dry, the pit would be backfilled with a minimum of five (5) feet of soil material. In

relatively flat areas, the pit area would be slightly mounded to allow for settling and to promote surface drainage away from the backfilled pit.

The portions of the cleared well site not needed for operational and safety purposes would be recontoured to the original contour if feasible, or if not feasible, to an interim contour that blends with the surrounding topography as much as possible. Sufficient level area would remain for setup of a workover rig and to park equipment. In some cases, rig anchors may need to be pulled and reset after recontouring to allow for maximum interim reclamation.

Topsoil would be evenly respread and aggressively revegetated over the entire disturbed area not needed for all-weather operations including road cuts/fills and to within a few feet of the production facilities, unless an all-weather, surfaced, access route or small "teardrop" turnaround is needed on the well pad.

Initial seedbed preparation would consist of backfilling, leveling, and ripping all compacted areas. Final seedbed preparation would consist of contour cultivating to a depth of 4 to 6 inches within 24 hours prior to seeding. Seeding would be conducted no more than 24 hours following completion of final seedbed preparation. A certified weed-free seed mix designed by BLM (shown below) to meet reclamation standards would be used. The seed mix would be used on all disturbed surfaces including pipelines and road cut/fill slopes.

To help mitigate the contrast of recontoured slopes, reclamation would include measures to feather cleared lines of vegetation and to save and redistribute cleared trees, debris, and rock over recontoured cut/fill slopes.

A proposed seed mixture for this location is:

- 3 #/acre PLS - Galleta
- 3 #/acre PLS – Bluebunch wheatgrass
- 2 #/acre PLS – Four-wing saltbush
- 1 #/acre PLS – Bluegrass
- 1 #/acre PLS – Annual ryegrass
- ½ #/acre PLS – Blue flax
- 10-1/2 #/acre PLS - Total

Reclamation would be considered successful if the following criteria are met: 75 percent of predisturbance cover within five (5) years of initial reclamation. 80 percent dominate species with no noxious weeds. The vegetation would consist of species included in the seed mix and/or occurring in the surrounding natural vegetation and erosion features are equal to or less than surrounding area.

Erosion control measures would be applied pursuant to Wapiti's General Permit to Discharge Stormwater under the Utah Pollutant Discharge Elimination System and accompanying Stormwater Pollution Prevention Plan.

2.1.7.2. Final Reclamation (P+A — Removal of equipment)

Flowlines on location would be removed before site reclamation and all flowlines between the wellsite and production facilities would remain in place and would be filled with water.

If necessary to ensure timely revegetation, the pad would be fenced to BLM standards to exclude livestock grazing for the first two growing seasons or until seeded species become firmly established, whichever comes later. Fencing would meet standards found on page 18 of the Gold Book, 4th Edition, or would be fenced with operational electric fencing.

Revegetation would be accomplished by planting mixed grasses as specified below. Revegetation is recommended for road area as well as around production site.

A proposed seed mixture for this location is:

- 3 #/acre PLS - Four-wing saltbush
- 3 #/acre PLS – Mountain Mahogany
- 2 #/acre PLS – Galleta
- 2 #/acre PLS – Bluebunch wheatgrass
- 2 #/acre PLS – Western wheatgrass
- ½ #/acre PLS – Blue flax
- 12-1/2 #/acre PLS - Total

Initial seedbed preparation would consist of backfilling, leveling, and ripping all compacted areas. Final seedbed preparation would consist of contour cultivating to a depth of 4 to 6 inches within 24 hours prior to seeding. Seeding would be conducted no more than 24 hours following completion of final seedbed preparation. A certified weed-free seed mix designed by BLM (shown above) to meet reclamation standards would be used. The seed mix would be used on all disturbed surfaces including pipelines and road cut/fill slopes.

Distribute topsoil, if any remains, evenly over the location, and seed according to the above seed mixture. If needed the access road and location shall be ripped or disked prior to seeding. Perennial vegetation must be established. Additional work shall be required in case of seeding failures, etc.

All disturbed areas, including roads, pipelines, pads, production facilities, and interim reclaimed areas would be recontoured to the contour existing prior to initial construction or a contour that blends indistinguishably with the surrounding landscape. Re-salvaged topsoil would be spread evenly over the entire disturbed site to ensure successful revegetation. To help mitigate the contrast of recontoured slopes, reclamation would include measures to feather cleared lines of vegetation and to save and redistribute cleared trees, woody debris, and large rocks over recontoured cut\fill slopes.

2.1.7.3. Monitoring

Reclaimed areas would be monitored annually. Actions would be taken to ensure that reclamation standards are met as quickly as reasonably practical. Reclamation monitoring would be documented in a reclamation report and submitted to the AO. The report would document compliance with all aspects of the reclamation objectives and standards, identify whether the reclamation objectives and standards are likely to be achieved in the near future without additional actions, and identify actions that have been or would be taken to meet the objectives and standards. The report would also include acreage figures for: Initial Disturbed Acres; Successful Interim Reclaimed Acres; Successful Final Reclaimed Acres. Reclamation reports would not be submitted for sites approved by the AO in writing as having met interim or final reclamation standards. Any time 30% or more of a reclaimed area is re-disturbed, monitoring would be reinitiated. The AO would be informed when reclamation has been completed, is successful, and the site is ready for final inspection.

2.1.8. Applicant Committed Environmental Protection Measures (ACEPMS)

2.1.8.1. Cultural Resources

The operator is responsible for informing all persons in the area who are associated with this project that they would be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work that might further disturb such materials, and contact the AO. The AO would inform the operator as to the work needed to determine the following:

- Whether the materials appear eligible for the National Register of Historic Places;
- The mitigation measures the operator would likely have to undertake before the site can be used (assuming in site preservation is not necessary); and,
- A timeframe for the AO to complete an expedited review to acquire the State Historic Preservation Officer's concurrence that the findings of the AO are correct and that mitigation is appropriate.

2.1.8.2. Paleontological

If any fossils are discovered during construction, the operator shall cease construction immediately and notify the AO so as to determine the significance of the discovery.

2.2. No Action Alternative

Under the No Action Alternative, Wapiti would not drill the one oil well in section 5, T. 11 S., R. 17 E., Duchesene County, Utah. Also the No Action Alternative would no respond to the purpose and need of drilling a unit obligation well to hold the unit. However, other oil and gas development in the area would be expected to continue. Other current resource trends and land use practices would also continue. The BLM's authority to implement the No Action Alternative

may be limited because oil and gas leases allow drilling in the lease area subject to the stipulations of the specific lease agreement. The BLM can deny the application for permit to drill (APD) if the proposal would violate lease stipulations and applicable laws and/or regulations. The BLM can also impose conditions of approval to prevent undue or unnecessary environmental degradation. If the BLM were to deny the APD, the applicant could attempt to reverse the BLM's decision through administrative appeals, seek to exchange its lease for leases in other locations, or seek compensation from the federal government. The outcome of these actions is beyond the scope of this EA because they cannot be projected or meaningfully analyzed at this time.

2.3. Alternatives Considered but not Analyzed in Detail

There were no other alternatives identified aside from the Proposed Action and No Action Alternatives that would meet the purpose and need of this project.

2.4. Conformance

The alternatives are in conformance with the Vernal Field Office RMP/ROD (October 31, 2008) and the terms of the lease. The RMP/ROD decision allows leasing of oil and gas while protecting or mitigating other resource values (RMP/ROD p. 97-99). The Minerals and Energy Resources Management Objectives encourage the drilling of oil and gas wells by private industry (RMP/ROD, p. 97). The RMP/ROD decision also allows for processing applications, permits, operating plans, mineral exchanges, and leases on public lands in accordance with policy and guidance and allows for management of public lands to support goals and objectives of other resources programs, respond to public requests for land use authorizations, and acquire administrative and public access where necessary (RMP/ROD p. 86). It has been determined that the proposed action and alternative(s) would not conflict with other decisions throughout the plan.

2.5. Relationships to Statutes, Regulations, or Other Plans

2.5.1. Federal Laws and Statutes

The subject lands were leased for oil or gas development under authority of the Mineral Leasing Act of 1920, as modified by the Federal Land Policy and Management Act of 1976, and the Federal Onshore Oil and Gas Leasing Reform Act of 1987. The lessee/operator has the right to explore for oil and gas on the lease as specified in 43 CFR 3103.1-2, and if a discovery is made, to produce oil and/or natural gas for economic gain.

2.5.2. State and Local Laws and Statutes

There are no comprehensive State of Utah plans for the vicinity of the Proposed Action.

The proposed project is consistent with the Duchesne County General Plan (Duchesne County as amended in 2012) that encompasses the location of the proposed well. In general, the Plan indicates support for development proposals such as the Proposed Action through the Plan's emphasis on multiple-use public land management practices, responsible use and optimum utilization.

The State of Utah School and Institutional Trust Lands Administration (SITLA) have leased much of the nearby state land for oil and gas production. Because the objectives of SITLA are to produce funding for the state school system, and because production on federal leases could further interest in drilling on state leases in the area, it is assumed that the alternatives analyzed, except the No Action Alternative, are consistent with the objectives of the state.

Chapter 3. Affected Environment:

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3.1. Air Quality

The Project Area is located in the Uinta Basin, a semiarid, mid-continental climate regime typified by dry, windy conditions, limited precipitation and wide seasonal temperature variations subject to abundant sunshine and rapid nighttime cooling. The Uinta Basin is designated as unclassified/attainment by the EPA under the Clean Air Act. This classification indicates that the concentration of criteria pollutants in the ambient air is below National Ambient Air Quality Standards (NAAQS), or that adequate air monitoring is not available to determine attainment.

NAAQS are standards that have been set for the purpose of protecting human health and welfare with an adequate margin of safety. Pollutants for which standards have been set include ground level ozone, (O_3), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and carbon monoxide (CO), and particulate matter less than 10 microns in diameter (PM_{10}) or 2.5 microns in diameter ($PM_{2.5}$). Airborne particulate matter consists of tiny coarse-mode (PM_{10}) or fine-mode ($PM_{2.5}$) particles or aerosols combined with dust, dirt, smoke, and liquid droplets. $PM_{2.5}$ is derived primarily from the incomplete combustion of fuel sources and secondarily formed aerosols, whereas PM_{10} is primarily from crushing, grinding, or abrasion of surfaces. Table 3.1, "Air Quality Background Values" (p. 17) lists ambient air quality background values for the Uinta Basin and NAAQS standards.

Table 3.1. Air Quality Background Values

Pollutant	Averaging Period(s)	Uinta Basin Background Concentration (g/m^3)	NAAQS (g/m^3)
SO_2	Annual	0.8[2]	--[1]
	24-hour	3.9[2]	--[1]
	3-hour	10.1[2]	1,300
	1-hour	19.0[2]	197
NO_2	Annual	8.1[3]	100
	1-hour	60.2[3]	188
PM_{10}	Annual	7.0[4]	--[6]
	24-hour	16.0[4]	150
$PM_{2.5}$	Annual	9.4[3]	15
	24-hour	17.8[3]	35
CO	8-hour	3,450[4]	10,000
CO	1-hour	6,325[4]	40,000

Pollutant	Averaging Period(s)	Uinta Basin Background Concentration (g/m^3)	NAAQS (g/m^3)
O_3	8-hour	100.0[3,5]	75

1 – The 24-hour and annual SO_2 NAAQS have been revoked by USEPA

2 – Based on 2009 data from Wamsutter Monitoring Station Data (USEPA AQS Database)

3 – Based on 2010/2011 data from Redwash Monitoring Station (USEPA AQS Database)

4 – Based on 2006 data disclosed in the Greater Natural Buttes FEIS. (BLM, 2012)

5 – Ozone is measured in parts per billion (ppb)

6 – The annual PM_{10} NAAQS has been revoked by USEPA

Existing point and area sources of air pollution within the Uinta Basin include the following:

- Exhaust emissions (primarily CO, NO_x, $PM_{2.5}$, and HAPs) from existing natural gas fired compressor engines used in transportation of natural gas in pipelines;
- Natural gas dehydrator still-vent emissions of CO, NO_x, $PM_{2.5}$, and HAPs;
- Gasoline and diesel-fueled vehicle tailpipe emissions of VOCs, NO_x, CO, SO_2, PM_{10}, and $PM_{2.5}$;
- Oxides of sulfur (SO_x), NO_x, fugitive dust emissions from coal-fired power plants, and coal mining/ processing;
- Fugitive dust (in the form of PM_{10} and $PM_{2.5}$) from vehicle traffic on unpaved roads, wind erosion in areas of soil disturbance, and road sanding during winter months; and,
- Long-range transport of pollutants from distant sources.

Two year-round air quality monitoring sites were established in summer 2009 near Red Wash (southeast of Vernal, Utah) and Ouray (southwest of Vernal). These monitors were certified as Federal Reference Monitors in fall of 2011, which means they can be used to make a NAAQS compliance determination. The complete EPA Ouray and Redwash monitoring data can be found at: http://www.epa.gov/airexplorer/index.htm

Both monitoring sites have recorded numerous exceedences of the 8-hour ozone standard during the winter months (January through March 2010, 2011, 2013, and 2014). It is thought that high concentrations of ozone are being formed under a “cold pool” process. This process occurs when stagnate air conditions form with very low mixing heights under clear skies, with snow-covered ground, and abundant sunlight. These conditions, combined with area precursor emissions (NO_x and VOCs), can create intense episodes of ozone. The high numbers did not occur in January through March 2012 due to a lack of snow cover. This phenomenon has also been observed in similar locations in Wyoming. Winter ozone formation is a newly recognized issue, and the methods of analyzing and managing this problem are still being developed. Existing photochemical models are currently unable to reliably replicate winter ozone formation. This is due to the very low mixing heights associated with unique meteorology of the ambient conditions.

Further research is needed to definitively identify ozone precursor sources that contribute to observed ozone concentrations.

The UDAQ conducted limited monitoring of $PM_{2.5}$ in Vernal, Utah in December 2006. During the 2006-2007 winter seasons, $PM_{2.5}$ levels were higher than the $PM_{2.5}$ health standards that became effective in December 2006. The $PM_{2.5}$ levels recorded in Vernal were similar to other areas in northern Utah that experience wintertime inversions. The most likely causes of elevated $PM_{2.5}$ at the Vernal monitoring station are those common to other areas of the western U.S. (combustion and dust) plus nitrates and organics from oil and gas activities in the Basin. $PM_{2.5}$ monitoring that has been conducted in the vicinity of oil and gas operations in the Uinta Basin by the Red Wash and Ouray monitors beginning in summer 2009 have not recorded any exceedences of either the 24 hour or annual NAAQS.

HAPs are pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental impacts. The EPA has classified 187 air pollutants as HAPs. Examples of listed HAPs associated with the oil and gas industry include formaldehyde, benzene, toluene, ethylbenzene, isomers of xylene (BTEX) compounds, and normal-hexane (n-hexane). There are no applicable Federal or State of Utah ambient air quality standards for assessing potential HAP impacts to human health.

3.1.1. Greenhouse Gases

Greenhouse gases keep the planet's surface warmer than it otherwise would be. However, as concentrations of these gases increase the Earth's temperature is climbing above past levels. According to NOAA and NASA data, the Earth's average surface temperature has increased by about 1.2 to 1.4º F in the last 100 years. The eight warmest years on record (since 1850) have all occurred since 1998, with the warmest year being 1998. However, according to the British Meteorological Office's Hadley Centre (BMO 2009), the United Kingdom's foremost climate change research center, the mean global temperature has been relatively constant for the past nine years after the warming trend from 1950 through 2000. Predictions of the ultimate outcome of global warming remain to be seen.

The analysis of the Regional Climate Impacts prepared by the U.S. Global Change Research Program (USGCRP) in 2009 suggests that recent warming in the region (including the project area) was nationally among the most rapid. Past records and future projections predict an overall increase in regional temperatures, largely in the form of warmer nights and effectively higher average daily minimum temperatures. They conclude that this warming is causing a decline in spring snowpack and reduced flows in the Colorado River. The USGCRP projects a region-wide decrease in precipitation, although with substantial variability in interannual conditions. For eastern Utah, the projections range from an approximate 5 percent decrease in annual precipitation to decreases as high as 40 percent of annual precipitation.

3.2. Invasive Plants/Noxious Weeds, Soils, and Vegetation

No invasive plants were noted during the onsite.

The soils are a rocky clay loam. Soils in the Project Area tend to be shallow and well drained.

The vegetation in the Project Area consists of fairly short shrubs, grasses and some forbs. Species include Indian ricegrass *(Achnatherum hymenoides)*, black sage brush *(Artemisia nova)*, Wyoming

sage brush *(Artemisia wyomingensis)*, buckwheat*(Eriogonum sp.)*, broom snakeweed *(Gutierrezia sarothrae)*, needle and thread grass *(Hesperostipa comata)*, prickly pear cactus sp. (*Opuntia sp.*), galleta grass *(Pleuraphis jamesii)*, and black greasewood *(Sarcobatus vermiculatus)*

3.3. Livestock Grazing and Rangeland Health

The Little Desert allotment is approved for livestock grazing. The current grazing permit is for 229 cattle from 11/1 to 4/23 for a total of 1,280 AUMs The Ecological Site Description (ESD) is categorized as a desert shallow loam with black sage as the dominate species for the area. Rangeland Health Assessments for 2014 were conducted near the proposed site. no determination has been signed, but the 17 indicators were being met, with slight alterations in bare ground, invasive species, cheat grass, and plant mortality/decadence, which may be due to the drought. Currently, oil and gas is mostly located in the Northern portion of the allotment.

3.4. Paleontology

No fossils were found on the surface (Erathem Vanir Geological, May 30, 2014)

3.5. Wildlife: Migratory Birds (Including Raptors)

All migratory birds and their nests are protected from take or disturbance under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C., 703 et seq.). These protection laws were implemented for the protection of avian species. Unless permitted by regulations, it is unlawful to pursue, hunt, kill, capture, possess, buy, sell, purchase, or barter any species covered under these Acts. In addition, Executive Order 13186 sets forth the responsibilities of federal agencies to further implement the provisions of these Acts by integrating bird conservation principles and practices into agency activities and by ensuring that federal actions evaluate the effects of actions and agency plans on protected avian species.

The BLM has reviewed district files and completed a field visit for raptor nesting and migratory bird habitat within all lands up to ½ mile of the proposed project well. There is one American kestrel nest within approximately ¼ mile of the project, but is not in line-of-site. The last known status of the nest was in 2008 when the nest was active. The following addresses migratory birds that may utilize the project area for nesting or foraging activities, including those species classified as Priority Species by Utah Partners-in-Flight. Utah Partners-in-Flight is a cooperative partnership among federal, state, and local government agencies as well as public organizations and individuals organized to emphasize the conservation of birds not covered by existing conservation initiatives.

Desert/Shrub Areas: American robin, black-billed magpie, black-throated sparrow, bobolink, Brewer's blackbird, Brewer's sparrow, common raven, mountain bluebird, sage sparrow, sage thrasher, and western kingbird.

3.6. Wildlife:Threatened, Endangered, Proposed, Candidate

Federally Listed Fish

The USFWS has identified four federally listed fish species historically associated with the Upper Colorado River Basin as being impacted through water depletions: bonytail, Colorado

pikeminnow, humpback chub, and razorback sucker. These fish are federally and state-listed as endangered and have experienced severe population declines due to flow alterations, habitat loss or alteration, and the introduction of non-native fish species.

Approximately 1.5 acre-feet of fresh water for drilling and construction operations would be obtained from a municipal water source in Myton, Utah. Water would be hauled to location over existing roads. No water well would be drilled on this lease.

Greater Sage-grouse

Greater sage-grouse are listed as a federal candidate species. These birds inhabit sagebrush foothills, plains, and mountain slopes where sagebrush is dominant (Nature Serve 2014). Sage-grouse require large expanses of sagebrush with good under stories of forbs and grasses for nutrition and shelter. Factors involved in the decline in both the distribution and abundance of sage-grouse include permanent loss, degradation, and fragmentation of sagebrush-steppe habitat throughout the western states including Utah (Heath et al. 1996, Braun 1998). Sage-grouse populations have declined (approximately 80%) from the mid-1960's to mid-1980's throughout much of the western states. Research and conservation efforts throughout the last twenty years have helped stabilize and recover many populations (UDWR 2014a).

In January of 2005, the USFWS completed a status review for greater sage-grouse and other numerous petitions. The status review was published "not warranted." In December 2007 the court remanded the decision on the combined greater sage-grouse petitions and required a new status review to be published by December 2008. The USFWS failed to publish the new status review and agreed with petitioners to publish the review by February 26, 2010. The USFWS announced that listing of the greater sage-grouse warrants the protection of the ESA, but that listing the species is precluded by the need to address higher priority species first. (73 FR 10218)

It is estimated that the well pad would disturb approximately 3.2 acres of Preliminary Priority Habitat (PPH). The Utah Division of Wildlife Resources (UDWR) has data that identify the Anthro Mountain sage-grouse population has used the surrounding area the past few years. Though these birds were generally located further west along the hills adjacent to pinyon and juniper habitat and not down in the washes near the main road of where the project is located (UDWR 2014b).

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Chapter 4. Environmental Effects:

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4.1. Direct and Indirect Impacts

The potential direct, indirect, and cumulative impacts from Alternative A (the Proposed Action) and Alternative B (the No Action Alternative) are discussed in the following sections of Chapter 4. Direct impacts to soils and vegetation in the following analyses are described as short-term and long-term impacts. In areas where interim reclamation is implemented, ground cover by herbaceous and woody species could be re-established to approximately 75 percent of initial basal cover within five years following seeding of native plant species and diligent weed control efforts. These reclaimed areas are categorized as short-term disturbance.

4.2. Proposed Action

4.2.1. Air Quality

This Proposed Action is considered to be a minor air pollution source under the Clean Air Act and is not controlled by regulatory agencies. At present, control technology is not required by regulatory agencies since the Uinta Basin is designated as unclassified/attainment. The Proposed Action would result in different emission sources associated with two project phases: well development and well production. Annual estimated emissions from the Proposed Action are summarized in Table 4.1, "Proposed Action Annual Emissions (tons/year) " (p. 25).

Table 4.1. Proposed Action Annual Emissions (tons/year)

Pollutant	Development[1]	Production	Total
NO_x	9.73	2.94	12.67
CO	0.79	7.41	8.20
SO^x	0.01	<0.01	0.01
PM_{10}	6.24	13.07	19.32
$PM_{2.5}$	0.69	1.52	2.21
VOC	0.03	13.13	13.16
Benzene	0.01	0.10	0.11
Toluene	<0.01	0.05	0.05
Ethylbenzene	<0.01	0.03	0.03
Xylene	<0.01	0.04	0.04
n-Hexane	<0.01	0.41	0.41
Formaldehyde	<0.01	0.13	0.13

[1] Emissions include 1 producing well(s) and associated operations traffic during the year in which the project is developed.

Well development includes NO_x, SO_2, and CO tailpipe emissions from earth-moving equipment, vehicle traffic, drilling, and completion activities. Fugitive dust concentrations would occur from vehicle traffic on unpaved roads and from wind erosion where soils are disturbed. Drill rig and fracturing engine operations would result mainly in NO_X and CO emissions, with lesser amounts of SO_2. These emissions would be short-term during the drilling and completion phases.

During well production, continuous NO_x, CO, VOC, and HAP emissions would originate from well pad separators, condensate storage tank vents, and daily tailpipe and fugitive dust emissions from operations traffic. Road dust (PM_{10} and $PM_{2.5}$) would also be produced by vehicles servicing the wells.

Under the proposed action, emissions of NO_x and VOC, ozone precursors, are 66.64 tons/yr for NO_x, and 85 tons/yr of VOC (**Table 4.1, "Proposed Action Annual Emissions (tons/year) " (p. 25)**). Emissions would be dispersed and/ or diluted to the extent where any local ozone impacts from the Proposed Action would be indistinguishable from background conditions.

The primary sources of HAPs are from oil storage tanks and smaller amounts from other production equipment. Small amounts of HAPs are emitted by construction equipment. These emissions are estimated to be minor and less than 1 ton per year.

4.2.1.1. Greenhouse Gases

The assessment of greenhouse gas emissions and climate change remains in its earliest stages of formulation. Applicable EPA rules do not require any controls and have yet to establish any emission limits related to GHG emissions or impacts. The lack of scientific models that predict climate change on regional or local level prohibits the quantification of potential future impacts of decisions made at the local level, particularly for small scale projects such as the Proposed Action. Drilling and development activities from the Proposed Action are anticipated to release a negligible amount of greenhouse gases into the local air-shed.

4.2.1.1.1. Mitigation

All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horse power must not emit more than 2 grams of NOx per horsepower-hour. This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower-hour.

4.2.2. Invasive Plants/Noxious Weeds, Soils, and Vegetation

The Proposed Action would disturb approximately ***4.2*** acres of soils and vegetation. The portions of the disturbed area that would not be utilized for production and product transportation would be subject to interim reclamation. If interim reclamation is successful, direct long-term impacts to vegetation would not occur. If interim reclamation is not successful, the entire area could remain disturbed for the long term. Long-term impacts to vegetation are expected for the life of the well (an average of 25 years or until reclamation is successful).

The well would contribute an estimated additional 3.0 tons of soil per acre per year above the current natural erosion rate for the first year of development. After the first year, the soil erosion attributed to the project would reduce to 1.5 tons per acre per year until the access roads and well pads are fully reclaimed. Erosion rates are higher during the first year due to disturbance during construction.

Direct impacts to soils include mixing of soil horizons, soil compaction, short-term loss of topsoil and site productivity, and loss of soil/topsoil through wind and water erosion. Loss of soil/topsoil in disturbed areas would reduce the revegetation success of seeded native species due to increased competition by annual weed species. Annual weed species are adapted to disturbed conditions, and have less stringent moisture and soil nutrient requirements than do perennial native species. Also there is the possibility for soil contamination from hydrocarbons being spilled and or leaked onto the well pad.

Additional direct impacts to vegetation are primarily associated with clearing of vegetation during construction. Indirect impacts to vegetation resources include the invasion and establishment of introduced, undesired plant species. The severity of these invasions would depend on the success of reclamation and revegetation, and the degree and success of noxious weed control efforts.

Impacts to soils and vegetation would be partially mitigated by reclamation of disturbed areas with native vegetation and control of noxious and invasive weeds by mechanical and chemical treatment (see 2.1.4). Under the Proposed Action, reclamation would occur on approximately 65 percent of the well pad upon completion of drilling. The remaining 35 percent of the well pad would be revegetated after abandonment of the well (approximately 25 years).

Mitigation

- All vehicles and equipment shall be cleaned either through power-washing, or other approved method, if the vehicles or equipment were brought in from areas outside the Uinta Basin, to prevent weed seed introduction.

- All contaminated and/or stained soils will be cleaned up immediately when noticed. The contaminated/stained soil will be removed and disposed of properly

4.2.3. Livestock Grazing and Rangeland Health

Implementation of the Proposed Action Alternative would directly affect livestock grazing by dissecting the allotment, causing further disturbance in livestock movement patterns. Forage loss has occurred on the Little Desert Allotment due to the removal of top soil and oil and gas disturbance. One historic Rangeland Health site on Little Desert is no longer used due to an abandoned and plugged well over the site. Currently rangeland health standards are being met.

4.2.4. Paleontology

No fossils were found on the surface, but because the Green River Formation has a Potential Fossil Yield Classification (PFYC) of 5, it is recommended that a permitted paleontologist conduct a spot inspection of well pad and access road after construction but prior to installation of the pit liner (Erathem Vanir Geological, May 30, 2014)

4.2.5. Wildlife: Migratory Birds (including raptors)

Project activities are anticipated to disturb approximately 3.2 acres of migratory bird foraging and nesting habitat. Given the abundance of foraging habitat in the surrounding area, habitat losses are not expected to reduce raptor prey bases to levels where “take” would occur. Impacts to migratory birds within the proposed project area would also be dependent upon the time when project activities would occur. If these activities occur in the late fall, most of the species would have left the area during winter migration. If construction activities were to occur during the spring or summer months it could cause birds to move into other adjacent habitats or into habitats where interspecific and intraspecific competition between species may increase. Surface and noise disturbance associated with project activities would be considered temporary and is anticipated to occur during typical working hours; however, by following the mitigation measures for burrowing owl outlined below impacts to migratory birds would be minimized or completely negated.

4.2.5.1. Conditions of Approval:

The proponent is required to install a hospital muffler on the exhaust of the pump-jack upon completion of the well.

4.2.6. Wildlife: Threatened, Endangered, Proposed, or Candidate

Federally Listed Fish

Implementation of the Proposed Action Alternative would directly impact the Upper Colorado River basin fishes. These impacts would remain until project completion. Water depletions from the Upper Colorado River Basin, along with a number of other factors, have resulted in such drastic reductions in the populations of the bonytail, Colorado pikeminnow, humpback chub, and razorback sucker. Water depletions reduce the ability of the river to create and maintain the primary constituent elements that define critical habitats. Food supply, predation, and competition are important elements of the biological environment. Food supply is a function of nutrient supply and productivity, which could be limited by reduction of high spring flows brought about by water depletions. Predation and competition from nonnative fish species have been identified as factors in the decline of the endangered fishes. Water depletions contribute to alterations in the flow regimes that favor nonnative fishes. Mitigation measures have not been required for this project as water would be obtained from a water well and not directly from critical habitat for the species

The Proposed Action Alternative would result in water depletion from removal of water from the Upper Colorado River Basin for project activities. Therefore, the Proposed Action will have a ***"may affect, likely to adversely affect"*** determination for the endangered Colorado River fish species. Section 7 consultation is not required for this project as it has already been completed by the municipality.

Greater Sage-grouse

As stated in Chapter 3, greater sage-grouse are listed as a federal candidate species because of widespread losses of sagebrush habitat. It is anticipated that 3.2 acres would be disturbed with the construction of the well pad. The project area is located on the outer fringe of PPH and the surrounding area is highly disturbed with existing oil and gas infrastructure (i.e. roads, pipelines, well locations, storage yards, etc.). After an onsite visit of the proposed project area it was determined that the surrounding habitat is poor brooding habitat given the lack of forbs, grasses, and low lying black sage-brush required for nutrition and cover. The UDWR has identified grouse using the surrounding areas; however, these birds were mainly located further west along the hills adjacent to pinyon and juniper habitat and not down in the washes near the main road of where the project is located (UDWR 2014b). The Proposed Action Alternative is in compliance with WO-IM-2012-043 as coordination with the UDWR and determinations between both agencies are complete (UDWR 2014b).

Overall, the Proposed Action Alternative is not anticipated to negatively affect greater sage-grouse and is not likely to result in a trend towards federal listing of the species.

4.3. No Action Alternative

4.3.1. Air Quality

Under the No Action Alternative, the proposed gas well(s) would not be drilled and there would be no additional impacts to air quality. Effects on ambient air quality would continue at present levels from existing oil and gas development in the region and other emission producing sources.

4.3.2. Invasive Plants/Noxious Weeds, Soils, and Vegetation

Under the No Action Alternative, there would be no direct disturbance or indirect effects to soils and vegetation from surface-disturbing activities associated the well. Current land use trends in the area would continue, including increased industrial development, increased traffic, and increased recreation use for hunting, bird watching, and sightseeing.

4.3.3. Livestock Grazing and Rangeland Health

Under the Proposed Action Alternative, livestock grazing and rangeland health standards would not be affected.

4.3.4. Paleontology

Under the no action alternative, fossil resources in the project area would remain the same as they currently are.

4.3.5. Wildlife: Migratory Birds (including raptors)

Under the No Action Alternative, there would be no direct or indirect effects to migratory birds, including raptors. Current land use trends in the area would continue of which would mainly include increased oil and gas development activities.

4.3.6. Wildlife: Threatened, Endangered, Proposed, or Candidate

Under the No Action Alternative, there would be no direct or indirect effects to threatened, endangered, and proposed or candidate species. Current land use trends in the area would continue of which would mainly include increased oil and gas development activities.

4.4. Reasonably Foreseeable Development and Cumulative Impacts Analysis

4.4.1. Cumulative Impacts

4.4.1.1. Air Quality

The cumulative impact area for air quality is the Uinta Basin. The potential impact of the Proposed Action to Uinta Basin ozone levels cannot be accurately modeled. In lieu of accurate modeling, the Greater Natural Buttes (GNB) air quality study, which is the most recent regional air model available for the Uinta Basin, and the GNB Final EIS section 5.3.1, is incorporated by reference and summarized below. The GNB Final EIS discloses that most of the cumulative emissions in the Uinta Basin are associated with oil and gas exploration and production activities. Consequently, past, present and reasonably foreseeable wells in the Uinta Basin are a part of the cumulative actions considered in this analysis. **Table 4.2, "2006 Uinta Basin Oil and Gas Operations Emissions Summary" (p. 30)** summarizes the 2006 Uinta Basin emissions as well as the incremental impact of this project's alternatives. The Proposed Action comprises a small percentage of the Uinta Basin emissions summary.

Table 4.2. 2006 Uinta Basin Oil and Gas Operations Emissions Summary

County	NO_x (tpy)	CO (tpy)	SO_x (tpy)	PM (tpy)	VOC (tpy)
Uintah	6,096	4,133	247	344	45,646
Carbon	995	814	22	40	2,747
Duchesne	3,053	2,448	96	173	19,019
Grand	337	207	16	22	2,360
Emery	273	199	9	14	453
Uinta Basin Total	10,754	7,800	391	592	70,226
Proposed Action	12.67	8.20	0.01	21.53	13.16
No Action	0	0	0	0	0

The GNB model predicted the following impacts to air quality and air quality related values for the GNB proposed action, which encompassed 3,675 new wells:

- Cumulative impacts from criteria pollutants to ambient air quality are well below the NAAQS at Class I airsheds and selected Class II areas;
- The incremental impacts to visibility would be virtually impossible to discern and would not contribute to regional haze at the Class I areas;
- The 2018 projected baseline emissions would result in impacts of 1.0 deciview for at least 201 days per year at the Class II areas;
- Discernible impacts at Flaming Gorge National Recreation Area and Dinosaur National Monument are anticipated under the GNB Final EIS proposed action;
- The GNB Final EIS proposed action would contribute less than 1 percent to the acid deposition in Class I areas, and 4.3 percent at the Flaming Gorge Class II area;
- Project-related acid deposition impacts at sensitive lakes were below the USFS screening threshold; and,

- Ozone levels are below the current ozone standard of 75 ppb for the fourth highest annual level in the Uinta Basin for the 2018 projected baseline, and the proposed action would be approximately 3.2 percent of the cumulative ozone impact within the Uinta Basin.

Based on the GNB model results, it is anticipated that the impact to ambient air quality and air quality related values associated with the Proposed Action would be indistinguishable from, and dwarfed by, the margin of uncertainty associated with the model and Uinta Basin emission inventory. The No Action alternative would not result in an accumulation of impacts.

4.4.1.2. Greenhouse Gases

Inconsistent results based on scientific models used to predict global climate change prohibit the BLM from quantifying cumulative impacts. Drilling and development activities from the Proposed Action are anticipated to release a negligible amount of greenhouse gases, into the local airshed, resulting in a negligible cumulative impact. The No Action Alternative would not result in an accumulation of impacts.

4.4.2. Invasive Plants/Noxious Weeds, Soils, and Vegetation

The CIAA for Invasive Plants/Noxious Weeds, Soils, and Vegetation is the 14,333-acre Desert Spring Wash Subwatershed. Cumulative impacts include soil disruption, dust impacts, plant and pollinator habitat destruction, and weed invasion. Surface disturbance is a good indicator of the extent of these cumulative impacts.

There is one active approved field development NEPA document within the CIAA, Gasco Energy Inc. Uinta Basin Natural Gas Development Project. The CIAA is entirely within the Gasco EIS. The cumulative effects for invasive plants/noxious weeds, soils, and vegetation would be the same as the cumulative effects of the Gasco EIS. Under the No Action Alternative the cumulative impacts would be the same as the present conditions.

4.4.3. Livestock Grazing and Rangeland health

The Cumulative Impact Area of Analysis (CIAA) is the Little Desert allotment. The following table lists past oil and gas disturbance within the CIAA.

Table 4.3. Oil and Gas Disturbance

Type of Disturbance	Total	Total Amount of Disturbance
Producing Gas Wells	37	185 Acres
Producing Oil Wells	27	135 Acres
Plugged and Abandoned	18	90 Acres
Drilling	3	15 Acres
Shut in Wells	6	30 Acres
Total	91	455 Acres

The above table is based on the assumption that each type of disturbance is equal to 5 acres in disturbance and is based on the latest layer of ARCGIS UDOGM information. The Proposed Action Alternative would add another 4.2 acres to the total of surface disturbance. No Action Alternative there would be no new surface disturbance added, but oil and gas activities would continue in the Little Desert allotment.

4.4.4. Paleontology

This project area is considered the area of cumulative impact. This area has a history of oil and gas wells and road and pipeline development. Other roads, power lines, and pipelines associated with the oil industry already cross this area. Historically, fossil resources have been protected during oil field development by conducting paleo surveys and applying the required mitigation measures. However, cumulative impacts include potential destruction and theft of fossils resulting from increased human access to the area and surface disturbing activities.

The proposed well location, pipeline, and access road were surveyed for paleontology resources. Outcrops and erosional surfaces were checked within the proposed construction areas to determine if fossils were present and to assess needs when found. The probability for impacting scientifically important paleontological resources during construction was determined to be moderate. Spot checking after construction of the well pad and access road in the area will help to mitigate adverse impacts to paleo resources from this project.

Under the No Action Alternative cumulative impacts would be decreased because there would be no new surface disturbance and the area would remain in its present condition.

4.4.5. Wildlife: Migratory Birds (Including Raptors)

The cumulative impact analysis area for migratory birds is defined as the Sheep Wash – Green River Hydrologic Unit Boundary consisting of approximately 135,941 acres. This hydrologic unit boundary was chosen for cumulative impact analysis as this best represents a soil and vegetation habitat type avian species found within the project area would utilize in whole. Future actions of the Proposed Action could increase human presence in the area continuing to fragment and manipulate the surrounding habitats by increasing the presence of non-native invasive plant species. Further introduction of non-native invasive plant species could have significant adverse impacts on migratory birds that are dependent upon prevalent species for their survival. In general such an environmental shift would probably have negative impacts on wildlife species and would favor non-native and readily adaptive species.

Impacts to migratory birds in the cumulative impact analysis area would be dependent upon the season of project activities. Any activities completed in the late fall be would less likely to have a direct impact to avian species because many of the species would have left for winter grounds. The Condition of Approval associated with the project well will further limit noise disturbance to avian species within the area. In addition to displacement caused by project activities the Proposed Action Alternative would also result in the temporary removal of up to approximately 4.2 acres of potential nesting and foraging habitat for migratory birds. However, successful reclamation efforts would return disturbed habitats to pre-disturbance levels and loss of vegetation would be a temporary impact to migratory bird habitat. The No Action Alternative would not result in an accumulation of impacts.

4.4.6. Wildlife: Threatened, Endangered, Proposed, or Candidate

Federally Listed Fish

Cumulative effects include the effects of the future state, tribal, local, or private actions that are reasonably certain to occur within the upper Colorado River Basin. Declines in the abundance or

range of many special status species have been attributed to various human activities on federal, state, and private lands, such as human population expansion and associated infrastructure development; construction and operation of dams along major waterways; water retention, diversion, or dewatering of springs, wetlands, or streams; recreation, including off-road vehicle activity; expansion of agricultural or grazing activities, including alteration or clearing of native habitats for domestic animals or crops; and introductions of nonnative plant, wildlife, or fish, or other aquatic species, which can alter native habitats or out compete or prey upon native species. Many of these activities are expected to continue on state and private lands within the range of the various federally protected wildlife, fish, and plant species, and could contribute to cumulative effects to the species within the project area. Species with small population sizes, endemic locations, or slow reproductive rates, or species that primarily occur on non-federal lands where landholders may not participate in recovery efforts, would be highly susceptible to cumulative effects.

Reasonably foreseeable future activities that may affect river-related resources in the area include oil and gas exploration and development, irrigation, urban development, recreational activities, and activities associated with the Upper Colorado River Endangered Fish Recovery Program. Implementation of all or any of these projects has affected and continues to affect the environment including, but not limited to, water quality, water rights, socioeconomic, and wildlife resources.

Greater Sage-grouse

The cumulative impact area for greater sage-grouse is approximately 21,606 acres of sage-grouse winter habitat (all within the PPH areas). This portion of the winter range covers a vast area of where the Anthro Mountain sage-grouse utilize during winter months. The project would contribute to the loss of 3.2 acres of sage-grouse winter range following project activities. The surrounding area is highly fragmented with oil and gas infrastructure (i.e. roads, pipelines, well locations, and storage yards) and the addition of this well would further increase fragmentation throughout the sage-grouse range; however, this well is located outside the main concentration areas. The No Action alternative would not result in an accumulation of impacts.

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Chapter 5. Tribes, Individuals, Organizations, or Agencies Consulted:

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Table 5.1. List of Persons, Agencies and Organizations Consulted

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
USFWS	Information on Consultation, under Section 7 of the Endangered Species Act (16 USC 1531).	Water depletion is anticipated to occur; however, the proponent will be withdrawing water from a municipal source. Therefore, Section 7 Consultation has been completed by the municipality.
State Historic Preservation Office (SHPO)	Historic Preservation Act.	BLM recommended a No Effect determination based on Class III surveys and asked for concurrence on the well listed in this EA. Concurrence was received on 5/21/2014, documentation of this can be found in the individual well/APD file.
Utah Division of Wildlife Resources	The project area is within sage grouse wintering habitat.	UDWR concurred that the mitigation brought forward were adequate for the well location.

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Chapter 6. List of Preparers

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Table 6.1. List of Preparers

Name	Title	Responsible for the Following Section(s) of this Document
David Gordon	Natural Resource Specialist/ Environmental Scientist	Chapters 1 & 2 Chapters 3 & 4: Soils and vegetation
Brandon McDonald	Wildlife Biologist	Chapters 3 & 4: Wildlife
Elizabeth Gamber	Geologist	Chapters 3 & 4: Paleontology
Alec Bryan	Rangeland Management Specialist	Chapters 3 & 4: Livestock Grazing & Rangeland Health Standards

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Chapter 7. References Cited

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Appendix A. Interdisciplinary Team Checklist

Project Title: Wapiti's Federal 41–5–11–17H

NEPA Log Number: DOI-BLM-UT-G010-2014–0197–EA

File/Serial Number: UTU-75672

Project Leader: David Gordon

DETERMINATION OF STAFF: (Choose one of the following abbreviated options for the left column)

NP = not present in the area impacted by the proposed or alternative actions

NI = present, but not affected to a degree that detailed analysis is required

PI = present with potential for relevant impact that need to be analyzed in detail in the EA

NC = (DNAs only) actions and impacts not changed from those disclosed in the existing NEPA documents cited in Section D of the DNA form. The Rationale column may include NI and NP discussions.

Determination	Resource/Issue	Rationale for Determination	Signature	Date
RESOURCES AND ISSUES CONSIDERED (INCLUDES SUPPLEMENTAL AUTHORITIES APPENDIX 1 H-1790-1)				
PI	Air Quality & Greenhouse Gas Emissions	Emissions from earth-moving equipment, vehicle traffic, drilling and completion activities, separators, oil storage tanks, dehydration units, and daily tailpipe and fugitive dust emissions could adversely affect air quality. No standards have been set by EPA or other regulatory agencies for greenhouse gases. In addition, the assessment of greenhouse gas emissions and climate change is still in its earliest stages of formulation. Global scientific models are inconsistent, and regional or local scientific models are lacking so that it is not technically feasible to determine the net impacts to climate due to greenhouse gas emissions. It is anticipated that greenhouse gas emissions associated with this action and its alternative(s) would be negligible.	David Gordon	7/21/2014
NP	BLM Natural Areas	None are present in the project area per the Vernal Field Office RMP and GIS review.	David Gordon	6/23/2014
NP	Cultural: Archaeological Resources	No cultural properties in APE of the proposed project	Jimmie McKenzie	6/5/2014

Determination	Resource/Issue	Rationale for Determination	Signature	Date
NP	Cultural: Native American Religious Concerns	No Traditional Cultural Properties (TCPs) are identified within the APE. The proposed project will not hinder access to or use of Native American religious sites.	Jimmie McKenzie	6/5/2014
NP	Designated Areas: Areas of Critical Environmental Concern	None are present in the project area per the Vernal Field Office RMP and GIS review.	David Gordon	6/23/2014
NP	Designated Areas: Wild and Scenic Rivers	None are present in the project area per the Vernal Field Office RMP and GIS review.	David Gordon	6/23/2014
NP	Designated Areas: Wilderness Study Areas	None are present in the project area per the Vernal Field Office RMP and GIS review.	David Gordon	6/23/2014
NI	Environmental Justice	No minority or economically disadvantaged communities or populations would be disproportionately adversely affected by the proposed action or alternatives.	David Gordon	6/23/2014
NP	Farmlands (prime/unique)	No prime or unique farmlands, as identified by the NRCS, based on soil survey data for the county are located in the project area; therefore, this resource will not be carried forward for analysis.	David Gordon	6/23/2014
NI	Fuels/Fire Management	No fuel management activities planned for the project area. The proposed project would not conflict with fire management activities following GIS/field office review.	David Gordon	6/23/2014
NI	Geology/Minerals/ Energy Production	Natural gas, oil, gilsonite, oil shale, and tar sand are the only mineral resources that could be impacted by the project. Production of natural gas or oil would deplete reserves, but the proposed project allows for the recovery of natural gas and oil per 43 CFR 3162.1(a), under the existing Federal lease. Compliance with "Onshore Oil and Gas Order No. 2, Drilling Operations" will assure that the project will not adversely affect gilsonite, oil shale, or tar sand deposits. Due to the state-of-the-art drilling and well completion techniques, the possibility of adverse degradation of tar sand or oil shale deposits by the proposed action will be negligible. Well completion must be accomplished in compliance with "Onshore Oil and Gas Order No. 2, Drilling Operations". These guidelines specify the following: *... proposed casing and cementing programs shall be conducted as approved*	Elizabeth Gamber	7/2/2014

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. Any isolating medium other than cement shall receive approval prior to use.		
IP/NW: PI Soils: PI Veg: PI	Invasive Plants/ Noxious Weeds, Soils & Vegetation	IP/NW: Proposed disturbance would provide suitable habitat for the establishment and spread of non-native plant species. Operator would control invasive species in all disturbed areas as discussed in Chapter 2. Soils: 4.2 acres of soil disturbance would occur during construction until reclamation is successful. Soils would be recontoured and reseeded during reclamation. The location would be seeded with the seed mix approved by the BLM Authorized Officer. Veg: 4.2 acres of initial vegetation disturbance/removal. Upon construction completion, the disturbed area would be reseeded and re-contoured to the approximate natural contours. This would reduce the effects of the disturbance when the seeding becomes established. The location would be seeded with the seed mix approved by the BLM Authorized Officer.	David Gordon	6/23/2014
NI	Lands/Access	The proposed area is located within the Vernal Field Office Resource Management Plan area which allows for oil and gas development with associated road and pipeline right-of-ways. All roads and pipelines are located on lease and would be considered beneficial use of the lease. No existing land uses would be changed or modified by the implementation of the proposed action; therefore, there would be no adverse effect.	Katie White Bull	07/09/2014
NP	Lands with Wilderness Characteristics (LWC)	No Wilderness Characteristics were found in the project area per GIS review. See map in Appendix B.	David Gordon	6/23/2014
PI	Livestock Grazing & Rangeland Health Standards	Livestock Grazing: The proposed project would add another 4.2 acres to the 455 acres of surface disturbance on the Little Desert allotment. This would decresase the amount of total forage available for livestock grazing and increase the change in livestock movement patterns.	Alec Bryan	8/11/2014

Determination	Resource/Issue	Rationale for Determination	Signature	Date
PI	Paleontology	No fossils were found on the surface, but because the Green River Formation has a PFYC of 5, it is recommended that a permitted paleontologist conduct a spot inspection of well pad and access road after construction but prior to installation of the pit liner (Erathem Vanir Geological, May 30, 2014)	Elizabeth Gamber	7/2/2014
NI	Plants: BLM Sensitive	No individuals or populations of plants designated as UT BLM sensitive have been documented in or near the Project Area. However, suitable habitat for the following BLM Sensitive species is present in or near the Project Area: Graham's catseye (*Cryptantha grahamii*): No known individuals or populations of this species have been documented in or near the Project Area. Suitable habitat for this species is on Green River shales in mixed desert shrub, sagebrush or mountain shrub vegetation elevations from 5,000 -7,400 feet. This habitat (Green River shale) occurs within 2.0 miles but is not present in the Project Area. Green River greenthread (*Thelesperma caespitosum*): No known individuals or populations of this species have been documented in or near the Project Area. Suitable habitat for this species is sparsely vegetated cushion plant communities with little or no cover of graminoids or shrubs. It typically occurs on flat white shale benches or ridgetops on the midslope of river bluffs. This habitat (white shale benches) occurs within 2.0 miles but is not present in the Project Area. Sterile yucca (*Yucca sterilis*): Sandy soils in the vicinity of the proposed project may provide suitable habitat for *Yucca sterilis*. However, no populations are present. Given the exclusively clonal nature of the species, the potential for future establishment is negligible.	Christine Cimiluca	7/7/2014

Determination	Resource/Issue	Rationale for Determination	Signature	Date
NI	Plants: Threatened, Endangered, Proposed, or Candidate	No known populations of threatened, endangered, or candidate plant species have been documented in or near the Project Area, as per BLM GIS review. No threatened, endangered, or candidate plant species were observed during the onsite investigation. Potential habitat for the following Federally threatened, endangered, candidate or proposed plant species has been documented near the Project Area (per BLM GIS review): Potential habitat for threatened species Pariette cactus (*Sclerocactus brevispinus*) and Uinta Basin hookless cactus (*Sclerocactus wetlandicus*) has been documented within 2.25 miles of the Project Area (USFWS/BLM 2013 Cactus polygon, per BLM GIS review). However, suitable habitat is not present in the Project Area, no plants were observed during the onsite investigation, and the nearest known documented plant is located approximately 3.0 miles from the Project Area, per BLM GIS review. The two cactus species are unlikely to be impacted by the Proposed Action. Proposed Critical habitat for proposed threatened species Graham's beardtongue (*Penstemon grahamii*) is located 2.7 miles the Project Area, with a population documented approximately 2.7 miles away. Habitat for this species consists of gravelly clay soils on semi-barren knolls of white calcareous shale (Green River Formation) in the pinyon-juniper woodland zone at high elevations and at low elevations in sparse desert shrubland. Specifically, this species occurs on exposed raw shale knolls and slopes derived from Parachute Creek and Evacuation Creek, both part of the Green River Formation. Many of the occurrences of this species are found in association with oil shale (USFWS 2006). This habitat type is not present in the Project Area, and the species is not anticipated to be impacted as part of the Proposed Action. Potential habitat for endangered species shrubby reed-mustard (*Schoencrombe suffratescens*) is located within 2.4 miles of the Project Area (USFWS/BLM 2013 shrubby reed-mustard polygon, per	Christine Cimiluca	7/7/2014

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		BLM GIS review). There are no known individuals or populations near the Project Area. This species is known to inhabit mixed desert shrub communities and sometimes pinyon -juniper and desert shrub, on semi-barren, white-shale layers of the Evacuation Creek Member of the Green River Formation. It is commonly found on level to moderately sloping ground surfaces. Soils are dry, shallow, and fine-textured, and are usually overlain by shale fragments. 1555-1981 m elevation. This type of soil is not present in the Project Area, and the Proposed Action is not anticipated to have an effect on this species. Potential habitat for endangered species clay reed-mustard (*Schoencrombe argillacea*) is located within 1.7 miles of the Project Area (USFWS/BLM 2013 clay reed-mustard polygon, per BLM GIS review). There are no known individuals or populations near the Project Area. Habitat for this species consists of shadscale, Indian ricegrass, pygmy sagebrush, and other mixed desert shrub communities on precipitous, typically north-facing slopes. On these slopes, plants grow in both exposed and protected sites, with protected sites usually having the more robust plants. Substrates consist of at-the-surface bedrock, scree, and fine-textured soils, often clay soils rich in gypsum (shale barrens) overlain with sandstone talus. Occurs about the zone of contact between the Tertiary lower Uinta Formation and the Evacuation Creek Member of the upper Green River shale Formation. This habitat is not present in the Project Area, and steep slopes that might be suitable habitat for this species would be avoided by the Proposed Action. Therefore, no impact to this species is anticipated.		
NP	Plants: Wetland/Riparian	None are present in the project area per the Vernal Field Office RMP and GIS review.	David Gordon	6/23/2014
NI	Recreation	There are five oil and gas wells with associated roads and pipelines within this project area. There is very little recreation taking place within this project area. Therefore recreation is not known to be an issue.	Bill Civish	12/09/2015

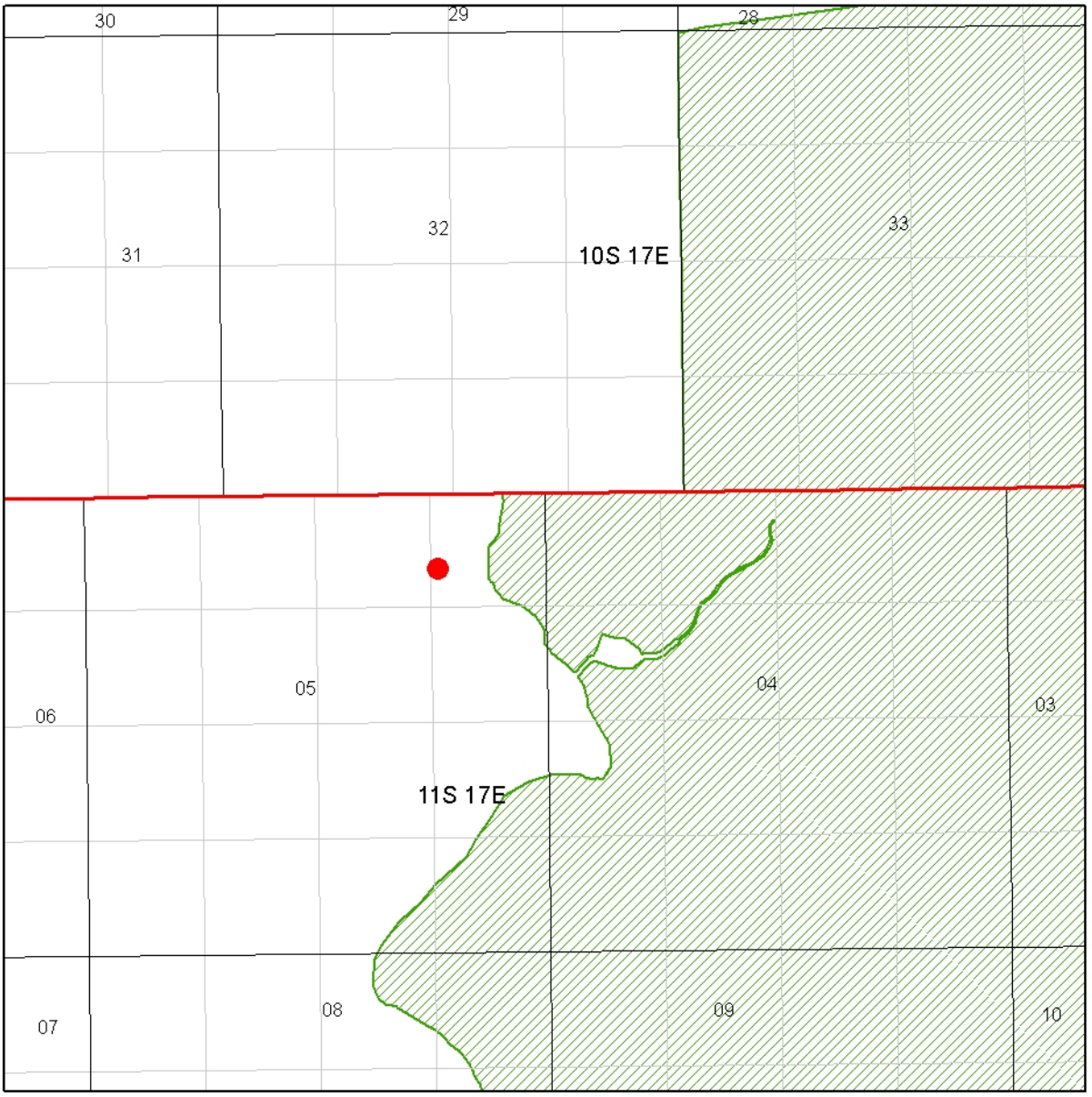
Determination	Resource/Issue	Rationale for Determination	Signature	Date
NI	Socio-Economics	No impact to the social or economic status of the county or nearby communities would occur from this project due to its small size in relation to ongoing development throughout the Basin.	David Gordon	6/23/2014
NI	Visual Resources	This project takes place in Visual Resource Management (VRM) area IV according to GIS review. The Vernal Field Office RMP allows for oil and gas development within VRM IV areas.	Bill Civish	12/09/2015
NI	Wastes (hazardous/solid)	Hazardous Waste: No chemicals subject to reporting under SARA Title III in an amount equal to or greater than 10,000 pounds will be used, produced, stored, transported, or disposed of annually in association with the project. Solid Wastes: Trash would be confined in a covered container and hauled to an approved landfill. Burning of waste or oil would not be done. Human waste would be contained and be disposed of at an approved sewage treatment facility.	David Gordon	6/23/2014
NP	Water: Floodplains	None are present in the project area per the Vernal Field Office RMP and GIS review.	David Gordon	6/23/2014
NI	Water: Groundwater Quality	Compliance with "Onshore Oil and Gas Order No. 1, will assure that the project will not adversely affect groundwater quality. Due to the state-of-the-art drilling and well completion techniques, the possibility of adverse degradation of groundwater quality or prospectively valuable mineral deposits by the proposed action will be negligible	Elizabeth Gamber	7/2/2014
NP	Water: Hydrologic Conditions (stormwater)	The proposed construction of the well pads, and roads, would alter the topography of the area to a small degree. It is not expected that surface water or stormwater would be created to the level of concern for Clean Water Act Section 402 (stormwater) review. In addition federal law has exempted energy development from stormwater requirements.	David Gordon	6/23/2014
NI	Water: Surface Water Quality	Surface Waters: The only potential for the proposed project to negatively impact water quality would be increased potential for chemical spills or increased disturbance to surface soils which could cause soil erosion. This would not be expected to occur in a way that would be a relevant impact to surface waters. The site is in an upland area and more than 3 miles from perennial waters.	David Gordon	6/23/2014

Determination	Resource/Issue	Rationale for Determination	Signature	Date
NP	Water: Waters of the U.S.	Waters of the U.S. are not present per USGS topographic map and GIS data review. The proposed project would not impact any drainage where a high water mark can be distinguished, drainages which regularly run water, or wetlands/riparian areas, per onsite.	David Gordon	6/23/2014
NP	Wild Horses	No herd areas or herd management areas are present in the project area per BLM GIS database.	David Gordon	6/23/2014
PI	Wildlife: Migratory Birds (including raptors)	The proposed project well is located within migratory bird habitat. The only known raptor nest is located approximately 1/4 mile northeast of the project area; however, the nest is not in line-of-site of the project area. Status of the nest was in 2008 and occupied by an American kestrel.	Brandon McDonald	07/08/2014
NI	Wildlife: Non-USFWS Designated	Though wildlife may be found within the area, the BLM does not designate any crucial habitat for wildlife species within the project area.	Brandon McDonald	07/08/2014
PI	Wildlife: Threatened, Endangered, Proposed or Candidate	Water depletion is anticipated to occur; however, as the proponent will be withdrawing water from a municipal source then Section 7 Consultation has been completed by the municipality. In addition, the BLM identifies greater sage-grouse Preliminary Priority Habitat within the project area. In addition, the nearest known lek is located approximately 3 miles and is considered historic. This project will conform to WO-IM-2012–043.	Brandon McDonald	07/08/2014
NP	Woodlands/Forestry	None Present as per 2008 Vernal RMP/ROD and GIS layer review	David Gordon	6/23/2014

FINAL REVIEW:			
Reviewer Title	**Signature**	**Date**	**Comments**
Environmental Coordinator			
Authorized Officer			

Appendix B. Map

Wapiti's Federal 41-5-11-17H



Proposed well pad

Designation

Non-WSA Lands with Wilderness Characteristics (Desolation Canyon)

Appendix B Map